UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/766,842	01/30/2004	Rabih Abou-Chakra	Q79655	3849

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EXAMINER
BARON, HENRY

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NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>*29 June 2011*</u>.
2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-13,15 and 16* is/are pending in the application.
   4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) *1-13,15-16* is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a) ☐ All   b) ☐ Some * c) ☐ None of:
       1. ☐ Certified copies of the priority documents have been received.
       2. ☐ Certified copies of the priority documents have been received in Application No. _____.
       3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)
1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
   Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Detailed Action

AUDIO AND VIDEO DATA PROCESSING DEVICE FOR MULTIMEDIA COMMUNICATION VIA A LOCAL NETWORK SET UP WITHIN AN ASYNCHRONOUS NETWORK

Response to Arguments/Remarks

1.   Claims 1 – 13 and 15 – 16 are pending in the application.

2.   An Advisory action has been sent to the Applicant citing the obvious double patenting (ODP)

issue as the outstanding issue.

3.   The Applicant has filed a terminal disclaimer on 6/29/2011. The Examiner withdraws the ODP

rejection.

4.   As prosecution is still open, the Examiner has updated search and submits the following action.

Claim Rejections - 35 USC § 103

5.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness

rejections set forth in this Office action:

> a.   A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of
> this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a
> whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject
> matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6.   Claims 1 – 7, 10 and 15 – 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Danneels et al (U.S. Patent 5663951), hereafter Danneels, in view of Kerr (U.S. Patent 5,844,600).

7.   In consideration of claim 1, Danneels teaches of an audio and video data processing device for

multimedia communication across an asynchronous network. (Fig 1; Figure Element (FE) 100, FE 110)

between a first pair of audio communication terminal (FE 104 and 108) and video communication

terminal (FE 102 and 106) and a like second pair (FE 100; Conferencing System B) where the terminals

are LAN type (4: [0050+]) with connection means for setting up video and audio link of the two pairs

(Figure 1; read analog video and audio, Conferencing System A and B) and video and audio links

between the two pairs (FE 110 and 4: [0050-0063] Each conferencing system 100 receives, digitizes, and

compresses the analog video signals generated by camera 102 and the analog audio signals generated by

microphone 104. The compressed digital video and audio signals are transmitted to the other

conferencing system via network 110, where they are decompressed and converted for play on monitor

106 and speaker 108, respectively. In addition, each conferencing system 100 may generate and transmit

data signals to the other conferencing system 100 for play on monitor 106. The video and data signals are

displayed in different windows on monitor 106. Each conferencing system 100 may also display the

locally generated video signals in a separate window). The nature of audio and video signals are typically

asynchronous, i.e. not synchronous as demonstrated in speech and images, thus the audio and video

terminals are asynchronous and wherein the connection means synchronizes audio and video data

according to a delay. (2:[0014] read [a] first subset of the data packets i.e. audio packets, is transmitted

from the local node to a remote node, and then a subsequent subset of the data packets i.e. video packets,

is transmitted from the local node to the remote node after a delay to avoid overloading the remote node

with data packets)

8.   However Danneels does not disclose, but Kerr teaches where the video packets are transmitted

without delay, and the audio packets are delayed for a predetermined time period. (see column 2 row 54

According to one aspect of the invention, various different synchronization mechanisms for the audio and

video data streams can be utilized, ranging from mechanisms which are simple to implement, to

mechanisms which require significant information about the network. For example, a simple

synchronization mechanism assumes that the delay in the network (i.e., transmission times) for the audio

and video are substantially identical, and that the video (de)coding delay is greater than the audio

(de)coding delay by a substantially known amount (e.g., 50-80 milliseconds). In this situation, synchronization is obtained by delaying the audio by the substantially known amount (e.g., 65 milliseconds).

1.   It would have been obvious at the time the invention was made by a person of to having ordinary skill in the art to modify the teachings of Danneels with the teachings of Kerr where the video packets are transmitted without delay, and the audio packets are delayed for a predetermined time period in order for the end user to perceive simultaneous signal delivery of both audio and video.

9.   In regards to claim 16, Danneels modified teaches the device according to claim 1, wherein the video data is transmitted from one of the first video communication terminal and the second video communication terminal to a receiving terminal one of the first video communication terminal and the second video communication terminal without delay, and the audio data is delayed by a predetermined time before being transmitted to a receiving audio communication terminal as the delays between the video and audio streams are relative.

10.   With regards to claim 2, Danneels does not teach the device according to claim 1 with first dating means arranged to attach a transmit time mark and an identifier to audio and video data; coming from the first audio and video communication terminal before their transmission to the second pair via the said local network and to attach a receive time mark to the audio and video data coming from the second pair and containing an identifier and a transmit time mark, and their own processing means to determine a time difference representing the transmission time difference between the received audio and video data and presenting the same identifier from their respective transmit and receive time marks to delay by a value representing the time difference the transmission of the received audio data at the first audio communication terminal in relation to the transmission of the received video data at the first video communication terminal. Thus, Danneels does not teach connection means synchronizes audio and video data according to a delay.

11.   Kerr teaches of a device with first dating means that attaches a transmit time mark and an

identifier to audio and video (A/V) data before their transmission to the second like A/V terminal pair.

(Section 2; Media Synchronization model; read data as media unit; transmit time mark as timestamp;

audio and video data as M media streams I – M, Figure 1) across the local network (see column 3 row 13

read Rather than applying a predetermined delay, clock information (e.g., a time stamp) can be provided

in the video data stream in accord with a second synchronization technique. By comparing the incoming

clock information to local clock information, the video coding delay can be determined, and applied to the

audio data stream (which is assumed to be minimal). Alternatively, if the audio coding delay is known,

the difference between the determined video delay and the known audio delay can be applied to the audio

signal.

12.   It would have been obvious at the time the invention was made to a person of ordinary skill in the

art to modify the teaching of Danneels with the synchronization teachings of Kerri.

13.   This modification would be advantageous as it would permit the video and audio packets received

across an asynchronous network to be synchronized and presented to the end user in concert.

14.   With regards to claims 3 – 4, and 15, Danneels does not of a device with processing means

arranged to determine a time difference (ET) representing the transmission time difference and a coding

and decoding time difference between the received audio and video data, presenting the same identifier

and synchronization of audio and video occurs once at the connection means and once at the pair.

15.   Kerr teaches of media stream coding and decoding performed in the application layer that are

received at synchronization service access point. Further, Kerr teaches of the concept of inter-stream

synchronization between master/slave streams. (see column 3 row 21 A third, and more complex

mechanism for synchronization involves inserting a clock sample (time stamp) in the digitized audio and

video streams. At the audio bridge, the time stamp which relates to the video which is to be received at a

particular terminal is utilized in conjunction with the mixed audio stream. Then, at the receiving end, the

received video and audio stream time stamps are extracted and compared to local clocks, and a delay representing the differential of the comparisons is calculated and applied (preferably to the audio path).)

16.   With regards to claims 5 and 7, Danneels teaches of audio and video links that are of a "deterministic" type in Figure 1; i.e. links between FE 102,106 and FE100 video; links between FE 104,108 and FE 100.

17.   In reference to claim 6, Danneels does not teach processing means arranged so as to determine the time difference from the transmit and receive time markings of the received audio and video data, and from values representing their respective transmission times between the connection means and the first audio and video communication terminals for which they are intended.

18.   Ishibashi teaches of media stream coding and decoding performed in the application layer (Figure 1) that are received at a common synchronization service access point (SSAP). Danneels teaches of audio and video links that are of a "deterministic" type in Figure 1 whose delays can be sent to the SSAP. Further, Ishibashi teaches that time difference can be derived from time markings i.e. timestamps between tightly coupled media-streams such as audio and video (Section 4.2.1 and Figure 4). Further, Ishibashi teaches of the concept of inter-stream synchronization between master/slave streams. Because of relative shorter period required to process audio data, the audio stream represents the master stream, the video the slave stream (Page 1011).

19.   It would have been obvious at the time the invention was made to a person of ordinary skill in the art to modify the teaching of Danneels with the synchronization teachings of Ishibashi.

20.   This modification would be advantageous as it would further facilitate the video and audio packets received across an asynchronous network to be synchronized and presented to the end user in concert.

21.   With regard to claim 10, Danneel's Conference System (Figure 1, FE 100) represents a connection means that provides a proxy type function for audio and video data to the network LAN.

22.   Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Danneels et al

(U.S. Patent 5663951), hereafter Danneels in view of Kerr et al, (U.S. Patent 5,844,600)., in view of

Davies (U.S. Patent 7043749) and in further view of Little et al, Network and Operating Systems Support

for Digital Audio and Video: Proceedings, 5th International Workshop on Network and Operating

Systems Support for Digital Audio and Video, Springer 1995, hereafter Little.

23.   With respect to claims 8 – 9, Danneels and Kerr teach the limitations of claim 2 but are silent in

teaching assignment of priority levels to audio and video data to be transmitted or assigning a lower

priority to video data relative to audio data.

24.   By contrast, Little teaches in the traffic characteristics and flow control that video streams have

lower priority then higher priority audio, i.e. read jitter as characteristic of audio streams. (Page 168 - 169;

Traffic Characteristics and Flow Control section).

25.   It would have been obvious at the time the invention was made to a person of ordinary skill in the

art to modify inter-stream synchronization between audio and teachings of Danneels and Ishibashi with

the audio visual (A/V) priority teachings of Little.

26.   By transporting audio streams across a network with a higher priority relative to its companion

video stream, the random arrival time of A/V packets at the destination port is mitigated and the

distribution of both packet classes are more tightly bounded. This is ultimately advantageous in

improving the synchronization of the two data streams.

27.   Claims 11 – 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Danneels et al

(U.S. Patent 5663951), hereafter Danneels in view of Kerr et al, (U.S. Patent 5,844,600),, and in further

view of Keshab et al, Digital Signal Processing for Multimedia Systems, CRC Press 1999 pg 245 and

274, hereafter Keshab.

28.   With regards to claim 11 – 13 Danneels and Kerr teach the limitations of claim 1 but are silent in

teaching of processing device for an audio, video, or communication unit.

29.   Keshab teaches, circa 1999, of recent developments of microprocessors and DSP chips that

provide audio and video processing capabilities (page 245, 2nd paragraph). Further, Keshab teaches that

developments of microprocessors can be also be used in wireless communications (page 274, 3rd

paragraph).

30.   It would have been obvious at the time the invention was made to a person of ordinary skill in the

art to modify the inter-stream synchronization between audio and teachings of Danneels and Ishibashi

incorporating a digital processing device in the video, audio, and communication unit.

31.   Processing audio and video signals with a DSP in the video and audio communication unit

improves the fidelity of A/V data and digital processing of communication signals efficiently utilizes

bandwidth.

Conclusion

32.   Any inquiry concerning this communication or earlier communications from the examiner should

be directed to HENRY BARON whose telephone number is (571)270-1748. The examiner can normally

be reached on 7:30 AM to 5:00 PM E.S.T. Monday to Friday.

33.   If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor,

Seema Rao can be reached on (571) 272-3174. The fax phone number for the organization where this

application or proceeding is assigned is 571-273-8300.

34.   Information regarding the status of an application may be obtained from the Patent Application

Information Retrieval (PAIR) system. Status information for published applications may be obtained

from either Private PAIR or Public PAIR. Status information for unpublished applications is available

through Private PAIR only. For more information about the PAIR system, see http://pair-

direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer

Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR

CANADA) or 571-272-1000.

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/H. B./
Examiner, Art Unit 2462
HB

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/Kevin C. Harper/

Primary Examiner, Art Unit 2462